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ABSTRACT

This manual provides program objectives for instructors teaching automotive technology courses in junior and senior high Department of Defense Dependents Schools. The manual begins with a description of the automotive technology courses offered in the Dependents Schools, and a list of instructor expectations. Following is the main part of the document, consisting of the program's general objective (the student will integrate the principles, theories, and skills of automotive technology), with 21 program objectives. Each program objective is correlated with several suggested instructional objectives and with each grade level for courses in exploratory power mechanics, automotive consumerism, introduction to automotive technology, and vocational automotive mechanics. The final section of the manual contains suggested facility layouts, with illustrations, for an auto mechanics laboratory. Appended to the document is a list of approved textbooks and instructional materials for the automotive technology curriculum, along with publishers' and authors' names, sources of materials, and names of the textbook review committees. (KC)

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DS Manual 2870.1
November 15, 1980

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Automotive Technology Objectives

career education

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Foreword

Automotive Technology in the Department of Defense Dependents Schools (DoDDS) is a career education discipline which provides opportunities for students in junior high and high school. There are approximately 25 schools offering automotive technology.

The Automotive Technology Program provides students with exploratory experiences, consumer knowledge, industrial, and technical skills through hands-on learning experiences, problem solving, and the use of tools and equipment.

This manual has been prepared as a guide for the Automotive Technology Curriculum.

Anthony Cardinale
Director

Acknowledgments

The development of automotive technology objectives evolved from previous editions, curriculum review committees, and recent career education materials.

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Introduction

Automotive Technology is an exciting and challenging area of study. Never before in the history of mankind has one invention caused so much international controversy, economic, and social upheaval. The ever-increasing demand for our nonrenewable energy resources, coupled with global air pollution, has added new perspectives to the study of Automotive Technology.

Diesel engines, electric vehicles, steam cars, electronic engine control systems, turbines, alcohol additives, and fuel cells are but only a few of today's realities that must be included in any study of automotive technology.

This manual outlines a program designed to provide the student with entry-level skills to numerous jobs in the broad field of Automotive Technology. The program also provides a substantial base for students who decide to extend their career potential by continuing professional study at a community college, a four-year college, or technical school.

Instructor Expectations

While teaching the content and processes of automotive technology, the teacher should:

1. Instill in the student the paramount importance of learning to live and work harmoniously with other people.
2. Organize the shop in such a way as to provide opportunity for students to work in an atmosphere similar to the service garage.
3. Develop in the student the ability to do at least one job with the speed and accuracy that will be required under actual employment.
4. Encourage good work habits of orderliness, cleanliness, and care of property.
5. Instill pride in workmanship.
6. Develop and integrate the academic and shop program.
7. Demonstrate consumer skills.

Course Description

Exploratory Power Mechanics—This is a basic course covering areas of shop safety, small gas engines, hydraulics, electricity, and power-drive units. This course is designed to provide students with basic skills and technical knowledge needed for home use and as a basis for future mechanical coursework.

(Recommended for grades 7-8 for 9, 12, or 18 weeks—1 hour block)

Automotive Consumerism—A "must" for every high school student. Laboratory activities include basic automotive servicing that all owners of cars should be able to accomplish. Topics such as basic automobile theory, purchasing new and used cars, financing cars, and buying insurance are also included. An "informed consumer" is the primary objective of this special source, and, in addition, it serves as a good introduction for the student who might want to pursue a career in automotive technology.

(Recommended for grades 9-12 for 9 or 18 weeks—1 hour block)

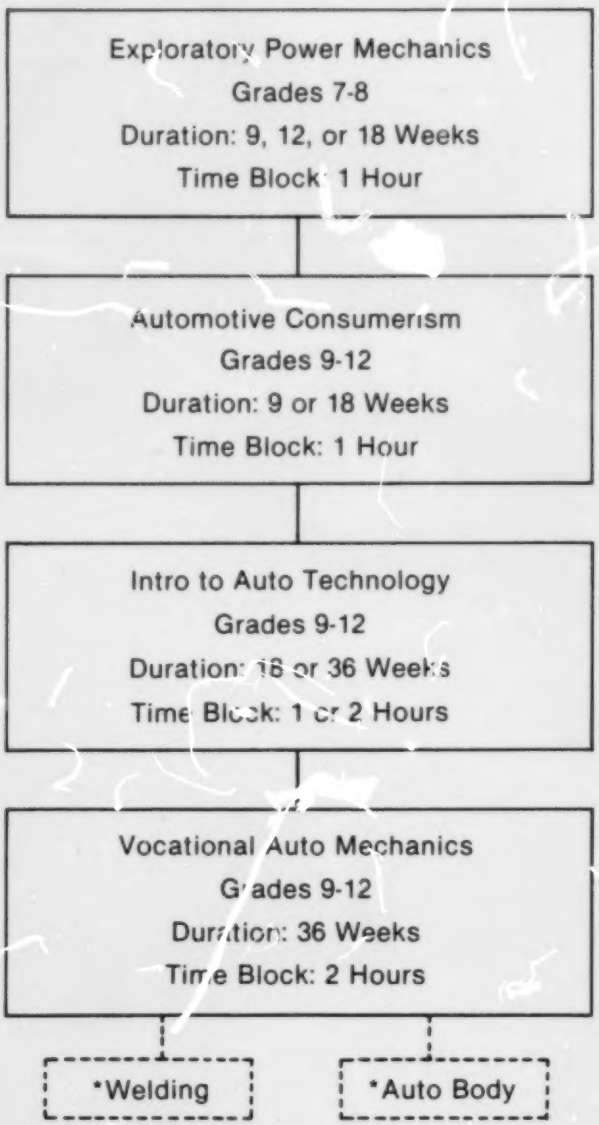
Introduction to Automotive Technology—This basic exploratory course covers a wide range of career opportunities in the mechanics field. A general orientation is offered for the study of small engines, motorcycles, gas and arc welding, auto body, and diesel and marine engines. Study of the basic automobile systems includes hands-on activities in safety inspection, lubrication, tune-up, brakes, tire and wheel service, and basic auto body service. This course is designed to provide students with basic mechanical skills and technical knowledge that is needed for continual study in automotive technology.

(Recommended for grades 9-12 for 18 or 36 weeks—1 or 2 hour block)

Vocational Automotive Mechanics—This vocational course is designed to provide students with entry-level job skills for some occupations in the automotive services trades. The emphasis is on servicing and repair of transmission, ignition, fuel, upper cylinder, brake and electrical systems. It is recommended that all classes at this level should incorporate a 2-hour block of instruction to enhance the job-level skills of the students.

(Recommended for grades 10-12 for 36 weeks—2 hour block)

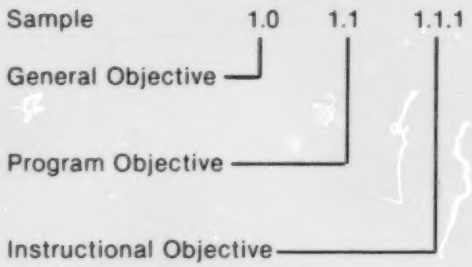
Organizational Pattern for Automotive Technology Courses



*Optional units — implemented as separate courses at schools where facilities are available.

Numbering code used with objectives.

— The numbering code indicates the level of the objective.
— The first digit of the number of each statement refers to the general objective.
— The second digit refers to the program objective.
— The third digit identifies the instructional objective.
— Instructional objectives are not to be considered inclusive but only presented as examples.
— The X next to the instructional objective indicates the course in which the objective should be taught.



The number code is used to facilitate

- identification of objectives
- correlation of objectives with textbook and instructional materials
- matching of test items to objectives

All Program and Instructional objectives should be preceeded by the phrase, "The learner should . . ."

General Objective: 1.0 The student will integrate the principles, theories, and skills of automotive technology.

Program Objective	Instructional Objective (Illustrative)	7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
1.1 Apply standard safety procedures in everyday situations.	1.1.1 Successfully complete a safety test in auto mechanics.	X	X	X	X
	1.1.2 Describe by name and location all of the safety facilities in the shop area.	X	X	X	X
	1.1.3 Demonstrate the ability to safely use hand tools in the school shop.	X	X	X	X
	1.1.4 Demonstrate proper cleanup procedures.	X	X	X	X
1.2 Perform proper laboratory procedures.	1.2.1 Demonstrate proper use of reference materials in making adjustments and repairs.	X	X	X	X
	1.2.2 Demonstrate proper use of basic hand tools needed in general automotive repair work.	X	X	X	X
	1.2.3 Identify basic hardware, hand tools, lubricants, and measuring equipment used in automotive technology.	X	X	X	X
	1.2.4 Perform routine operational tasks, such as shop cleanup procedures and tool maintenance.	X	X	X	X
1.3 Apply concepts of power mechanics related to basic small engine operation and construction.	1.3.1 Practice applicable safety rules.	X	X	X	X
	1.3.2 Identify the different parts of a small engine and their basic functions.	X	X	X	X
	1.3.3 Identify fundamental mechanical skills, which include visual inspection, basic maintenance and tune-up.	X	X	X	X
	1.3.4 Identify basic hand tools and instruments used in the small engine repair trade.	X	X	X	X

Program Objective	Instructional Objective (Illustrative)		7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
	1.3.5	Recognize important mechanical concepts that apply to both single-cylinder and multiple-cylinder internal combustion engines.	X	X	X	X
	1.3.6	Demonstrate use of performance specifications as noted in repair manuals.	X	X	X	X
	1.3.7	Conduct diagnostic and troubleshooting procedures.	X	X	X	X
1.4 Apply concepts of power mechanics related to moped and motorcycle repair.	1.4.1	Practice applicable safety rules.	X	X	X	X
	1.4.2	Identify the different parts of a moped and motorcycle, and their basic functions.	X			
	1.4.3	Identify fundamental mechanical skills, which include visual inspection, basic maintenance, and repair.	X			
	1.4.4	Identify basic hand tools and instruments used in the moped and motorcycle repair trade.	X			
1.5 Apply concepts of mechanics related to bicycle repair.	1.5.1	Practice applicable safety rules.	X			
	1.5.2	Identify the different parts of a bicycle and their basic functions.	X			
	1.5.3	Use fundamental mechanical skills which include visual inspection, basic maintenance, and tune-up.	X			
	1.5.4	Correctly identify and use basic hand tools and instruments used in the bicycle repair trade.	X			

Program Objective	Instructional Objective (Illustrative)	7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
1.6 Apply concepts of power mechanics related to marine engine repair.	1.6.1 Practice applicable safety rules.	X			
	1.6.2 Identify the different parts of an outboard engine and their basic functions.	X			
	1.6.3 Identify mechanical skills, which include visual inspection, basic maintenance, and tune-up.	X			
	1.6.4 Identify basic hand tools and instruments used in the outboard engine repair trade.	X			
	1.6.5 Recognize important mechanical concepts that apply to both single-cylinder and multiple-cylinder internal combustion engines.	X			
1.7 Apply basic concepts related to automotive consumerism.	1.7.1 List the major physical considerations in the purchase of a vehicle.		X	X	X
	1.7.2 Describe the automobile insurance coverages and finance systems.		X	X	X
	1.7.3 Demonstrate the proper operation of vehicle controls and utilization of the instruments.		X	X	X
	1.7.4 Identify the rules that govern the safe operation of a vehicle.		X	X	X
	1.7.5 Recognize the need for automobile maintenance and service.		X	X	X
	1.7.6 Apply some basic maintenance procedures on the cooling, electrical, ignition, lubrication, and brake and wheel systems.		X	X	X
1.8 Perform skills necessary for preventive maintenance of automobiles.	1.8.1 Identify factors which must be checked to maintain proper maintenance of the automobile.	X	X	X	X

Program Objective	Instructional Objective (Illustrative)		7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
	1.8.2	Describe the characteristics and function of each of the following systems: battery, cooling, lubrication, brake, suspension, ignition, and electrical.	X	X	X	X
	1.8.3	Categorize automotive components according to systems.	X	X	X	X
	1.8.4	Determine if components are in need of repair or replacement.	X	X	X	X
	1.8.5	Perform maintenance operations on each of the automotive systems listed in 1.8.2.	X	X	X	X
1.9 Distinguish the relationships among the different major automotive assemblies.	1.9.1	Identify the purpose of each automotive system.	X	X	X	X
	1.9.2	Identify automotive components and the systems to which they belong.	X	X	X	X
	1.9.3	Describe the relationships between automotive systems.	X	X	X	X
1.10 Integrate concepts and perform processes of basic engine operation and construction.	1.10.1	List the four engine strokes.	X	X	X	X
	1.10.2	Identify major engine components by sight.	X	X	X	X
	1.10.3	Describe the function of the major engine components.	X	X	X	X
	1.10.4	Describe the relationship of the major engine components.	X	X	X	X
	1.10.5	Differentiate among engine components by systems.	X	X	X	X
	1.10.6	Differentiate valve positions, piston positions and direction of travel, and combustion chamber events according to engine strokes.	X	X	X	X
	1.10.7	Remove and replace engine components.			X	X

Program Objective	Instructional Objective (Illustrative)	7-8 Exploratory	9-12 Consumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
1.11 Apply concepts and perform processes related to automotive fuel systems.	1.11.1 Identify fuel system components in standard, fuel injection, and diesel systems.		X	X	X
	1.11.2 Describe the function and purpose of fuel system components.		X	X	X
	1.11.3 Explain how individual components relate to the fuel system as a whole.		X	X	X
	1.11.4 Identify the carburetor system in operation during different engine operating conditions.		X	X	X
	1.11.5 Adjust carburetor to manufacturer's specifications.		X	X	X
1.12 Apply concepts and perform processes of ignition system.	1.12.1 Identify ignition system components by sight.		X	X	X
	1.12.2 Describe the function and purpose of ignition system components.		X	X	X
	1.12.3 Explain how ignition system components relate to each other and the ignition system as a whole.		X	X	X
	1.12.4 Perform service and repair operations on an ignition system (tune-up).		X	X	X
1.13 Perform tune-up operations.	1.13.1 Identify ignition, fuel, and emission control system components.		X	X	X
	1.13.2 Identify the purpose and function of ignition, fuel, and PCV system components.		X	X	X
	1.13.3 Describe the operation of the fuel, ignition, and emission control systems.		X	X	X
	1.13.4 Perform engine test operation.			X	X

Program Objective	Instructional Objective (Illustrative)	7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
1.14 Perform service and repair operations on electrical system components.	1.14.1 Identify electrical system components by sight.		X	X	X
	1.14.2 List electrical components according to type of system.		X	X	X
	1.14.3 Describe the purpose of the generating and starting system.		X	X	X
	1.14.4 Describe the purpose and function of electrical system components.		X	X	X
1.15 Perform service and overhaul operations on brake system components.	1.15.1 Identify brake system components by sight.		X	X	X
	1.15.2 Identify and describe the function of typical brake system components.		X	X	X
	1.15.3 Describe the operation of typical brake system components and their relationship to the system as a whole.		X	X	X
	1.15.4 Differentiate between disc brake and drum brake system components.		X	X	X
1.16 Perform service and repair operations on suspension and steering systems.	1.16.1 Identify suspension and steering system components.			X	X
	1.16.2 Describe the function and purpose of suspension and steering components.			X	X
	1.16.3 Explain how camber, caster, toe-in, toe-out on turns affect the steering system.			X	X
	1.16.4 Diagnose misaligned front ends by abnormal tire wear.			X	X
1.17 Perform service and repair operations on power transmission systems.	1.17.1 Identify power transmission system components on the vehicle.			X	X
	1.17.2 Describe differences between the operation of a clutch assembly and a torque converter.			X	X

Program Objective	Instructional Objective (Illustrative)	7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
1.17 (Continued) Perform service and repair operations on power transmission systems.	1.17.3 Describe differences between the operation of a standard transmission and an automatic transmission.			X	X
	1.17.4 Describe the operation of power transmission system components.			X	X
1.18 Perform proper techniques of autobody repair.	1.18.1 Describe the safety procedures and the application in automotive body repair and repainting.			X	X
	1.18.2 Apply proper techniques and application of skills used in body repair and repainting.			X	X
	1.18.3 Recognize the proper tools for various autobody jobs.			X	X
	1.18.4 Inspect the finished product.			X	X
1.19 Perform the proper techniques and operational procedures of the gas welding process.	1.19.1 Describe the safety procedures for gas welding.				X
	1.19.2 Identify the proper welding flames and their characteristics.				X
	1.19.3 Apply the proper manipulation of gas welding and cutting torches.				X
	1.19.4 Apply the basic joint preparation.				X
1.20 Perform electric ARC welding operations.	1.20.1 Describe the safety procedures for ARC welding.				X
	1.20.2 Identify all electrodes and their application.				X
	1.20.3 Know the proper electrode manipulation and application.				X
	1.20.4 Perform the basic joint preparation, position, welding, and bead evaluation.				X

Program Objective	Instructional Objective (Illustrative)	7-8 Explor-atory	9-12 Con-sumer	9-12 Intro. to Auto	10-12 Vocational Auto Mechanics
1.21 Apply power techniques and operational procedures for inert gas.	1.21.1 Describe the basic safety applications for inert gas shielded-ARC welding process.				X
	1.21.2 Apply basic joint preparation and position welding. (MIG and TIG systems)				X

Suggested Facilities Layouts

The facilities descriptions and layout sketches following are intended only as guides. Any number of alternative facility plans could work equally well. For some schools, facilities for this program may already exist. In such cases, the following material may offer the instructor and administration some suggestions for making the facility more effective through minor alterations.

For other schools starting up a new program, it may be necessary to remodel existing facilities. In such cases, it should not be expected that the remodeled facilities will offer every advantage that can be achieved with new facilities.

Even if new facilities are to be provided, a school may be unable to support a complete laboratory either because of enrollment, space, staff, or financial limitations. In such cases, decisions must be made regarding minimum program essentials and then facilities designed to fit.

Whether new or remodeled, facilities may serve multiple or joint functions. Thus, business and graphics production areas may be combined, art and graphics study areas could be shared, welding can be done in an auto shop, small engine and automotive shops can be combined, computer and business programs may share spaces, the various health and cosmetology programs can share a common suite, and the electronics laboratory could be combined with a physical science laboratory.

Such combinations have served elsewhere to strengthen both programs. Students see the direct relationship of what they are doing with careers in another field, and faculty finds professional stimulation and mutual support in working with colleagues in what have often been artificially separated disciplines.

Automotive Mechanics Laboratory

The automotive mechanics laboratory will house vocational courses in general auto mechanics which provide essential entry-level skills in the auto mechanics industry. The general environment, layout, and equipment should simulate a modern, fully equipped auto garage for major and minor repairs, lubrication, wheel alignment, brake service, etc.

The total space allocation for this area is approximately 3,000 square feet in a 30- by 100-foot configuration. This multipurpose laboratory is designed to operate as one continuous unit even though it is composed of several rather distinctive functional zones. One instructor could operate in this laboratory with a full class because he has vision to all spaces except into the parts and storage, which can be secured. The area is broken into the following general zones:

Live auto and motorcycle laboratory area. This area is composed of two 14- by 30-foot stations where full-size automobiles could be driven through the 12-foot-wide doors and three or four students could work in each stall at one time. One of the stalls could be provided with three or four motorcycle racks. The area should have a sealed concrete floor, sloped drain to a central sump consistent with local codes, and provided with electrical service and compressed air. One stall should be provided with a hoist. The ceiling height should be a minimum of 14 or 15 feet to accommodate vehicles, such as a Volkswagen bus on the lift.

The spaces are supported by a work bench area immediately in front of each automobile stall. The work benches should be metal with storage below and electrical service on the back splash of the counter.

Positive air movement must be provided to minimize carbon monoxide danger. Each vehicle bay must have a duct system to remove fumes from running engines. In addition, three duct connection points must be provided in the general work area to remove fumes from engines in motor mock-up units. An underground system, at last 8 inches in diameter, is preferred; however, an overhead system may be used. If an overhead system is used, the main exhaust stack should extend above the highest point on the roof line.

Lubrication, car service, and tire repair area. This area is composed of a single stall and should be provided with a portable hoist. It is supported with a lockable lubrication equipment cabinet, electrical and compressed air service from overhead reels, a tube testing tank, and tire repair equipment.

Parts cleanup. This area should be provided with a general curb around it and a drain in the center for the elimination of waste material. It is provided with a portable steam cleaner parts washer. The back wall should also be protected from water and stains by the use of an impervious material.

Alignment, wheel balance area. This area consists of one full stall equipped with a portable wheel alignment rack and a wheel balancing machine. The space can also double as a live auto repair stall.

Engine and small engine area. This area should be provided with an underground or overhead exhaust system to remove exhaust fumes from the engines that are operated on the movable engine stands. These stands are portable and can be arranged in the area to suit the instructor and students. The engine stand area is supported by two lockable tool cabinets. It is also in proximity to the testing units. Some open space is available and will be used for equipment that is used in the basic laboratory area such as hoists.

Secure parts and storage area. This complete room is lockable for security of parts and supplies. The door can be operated as a dutch door for issue purposes. The room should be provided with a variety of open shelving for bulk materials and for smaller parts. One cabinet should be provided for hand and other small tools that are used for issue purposes.

Self-study and clean area. This area is provided with two carrels that can be used for single-loop type instructional materials or other prerecorded materials in instructing students how to perform certain operations involved in auto mechanics. It also has a work bench with an oscilloscope and can be used for carburetor or electrical work.

Support machine shop area. This area is intended to be a support area with a lathe, valve grinder, buffer, drill press, and similar types of equipment that are used for repairing parts and equipment worked on by students in other areas within the total laboratory.

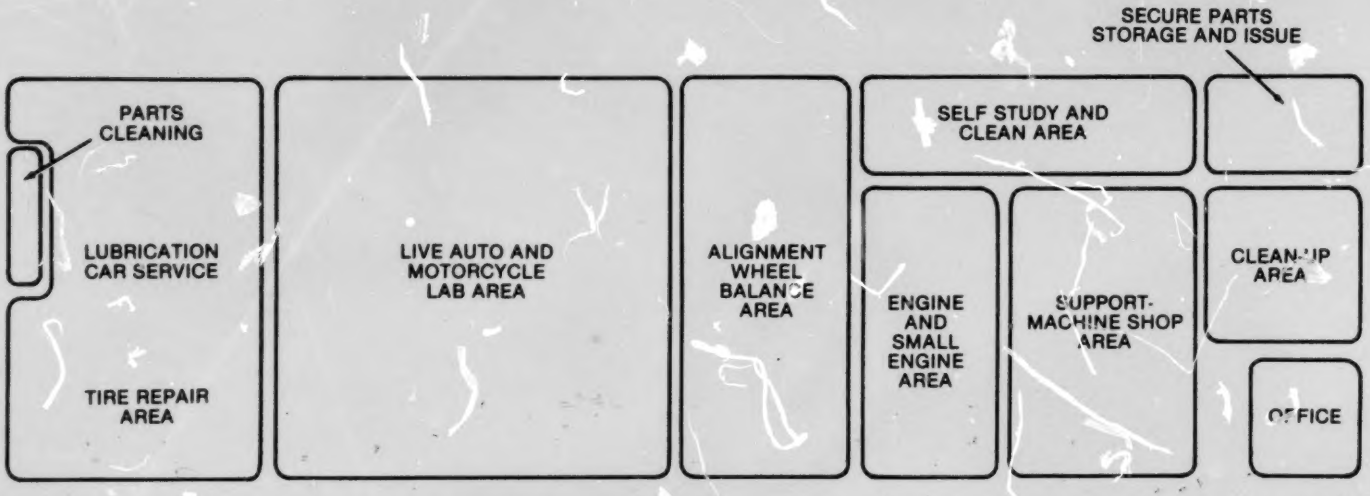
Locker and clean-up area. It is desirable that the sinks be shop sinks and accessible from both sides. The area is open to the rest of the laboratory intentionally. The lockers adjacent to the office should be kept below approximately 36- to 48-inch level in order to allow supervision from the office.

Outside of the laboratory. A fenced area should be provided outside the laboratory to accommodate at least 10 cars. This area should be provided with good access and a sloped drain which can be used for car washing. It should be ample for storage of automobiles coming to the laboratory and waiting for repairs.

General. There should be a drinking fountain in the general work area. Artificial illumination should provide 60-70 foot candles 30 inches above floor level. There should be 110 and 220 volt, double socket electrical outlets on 8 foot centers on all walls and on any support posts throughout the shop area. Provision must be made for a chain hoist to remove engines in at least one vehicle bay. Roof members may have to be reinforced above this bay.

A compressed air system, delivering a minimum of 60 pounds of pressure per square inch, must be provided with outlets in each vehicle bay and one in the general work area. Walls in the automotive shop, except those areas where overhead doors are required, should have high-level windows with bottom edge approximately 6 feet above floor level. This permits maximum use of wall areas for tool and equipment placement.

Suggested Auto Mechanics Laboratory Functional Zones *



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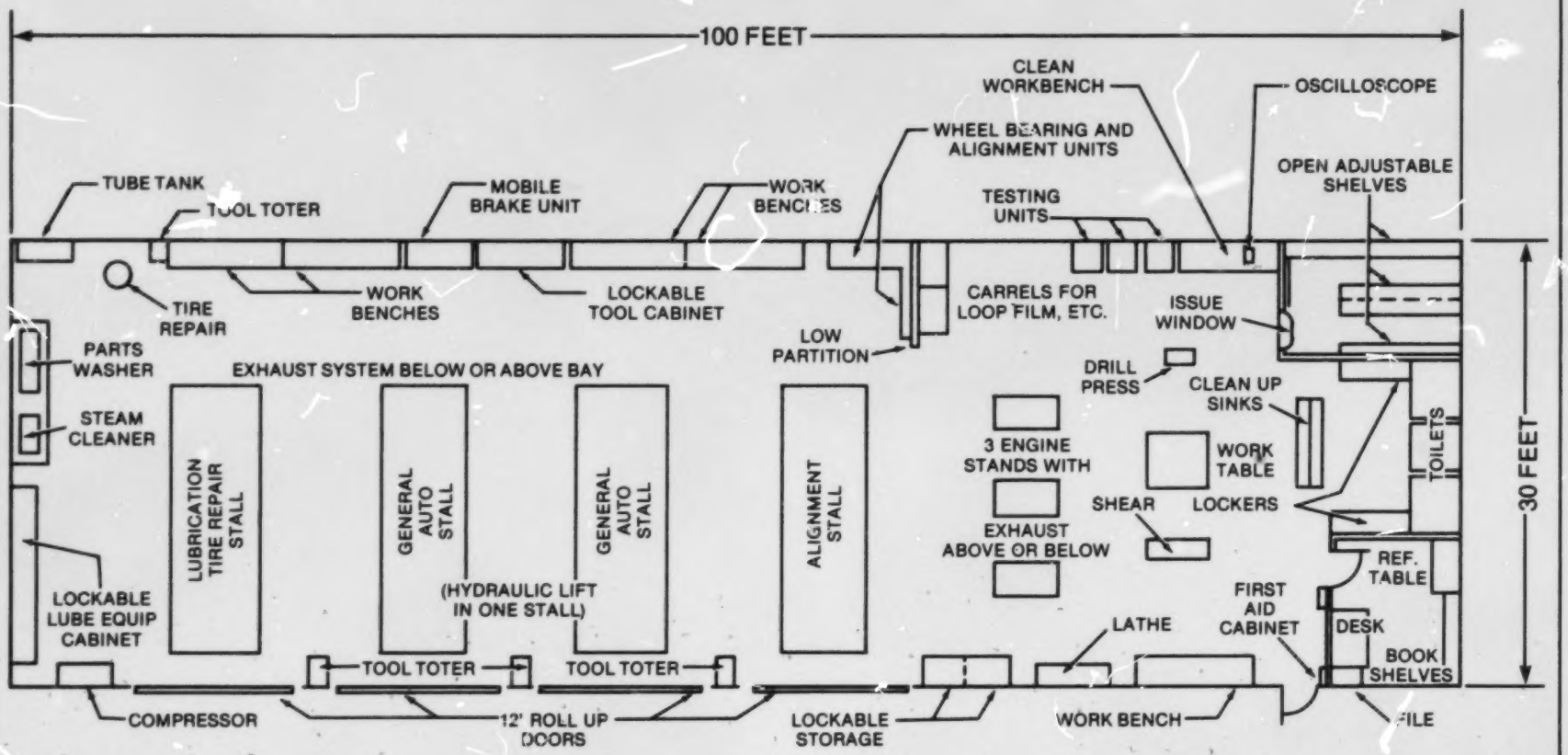
Suggested Auto Mechanics Laboratory *

(30' X 100')



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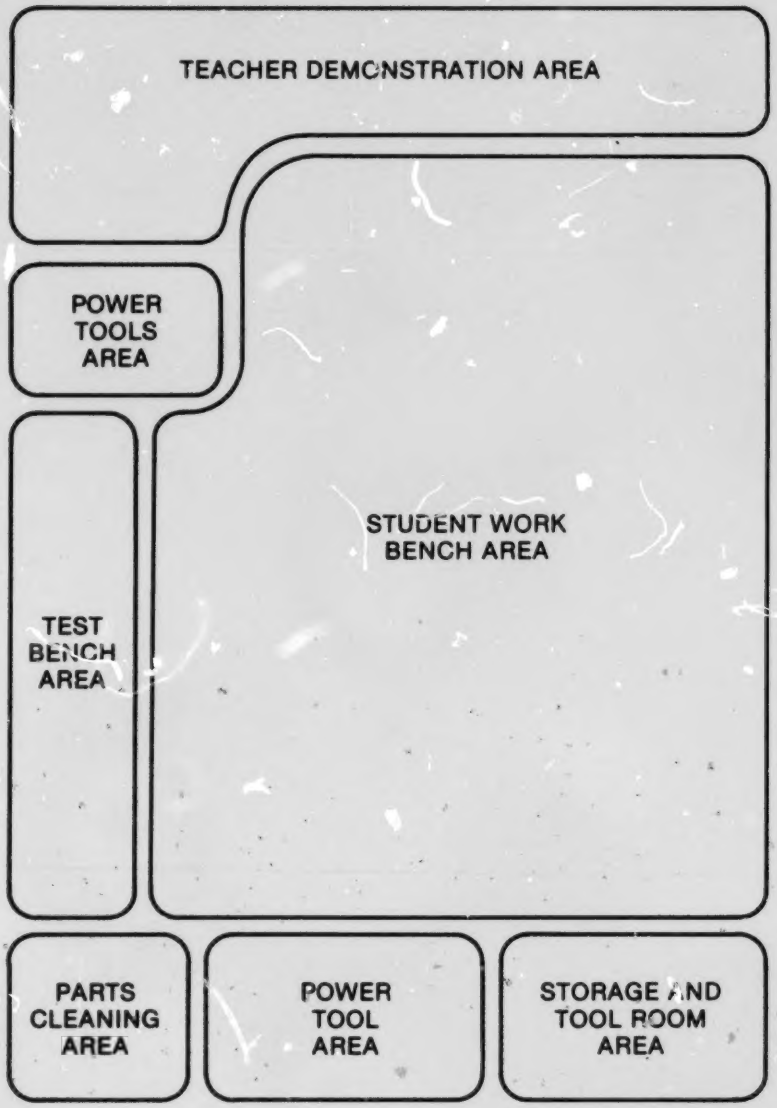
Suggested Small Engine Laboratory Functional Zones*



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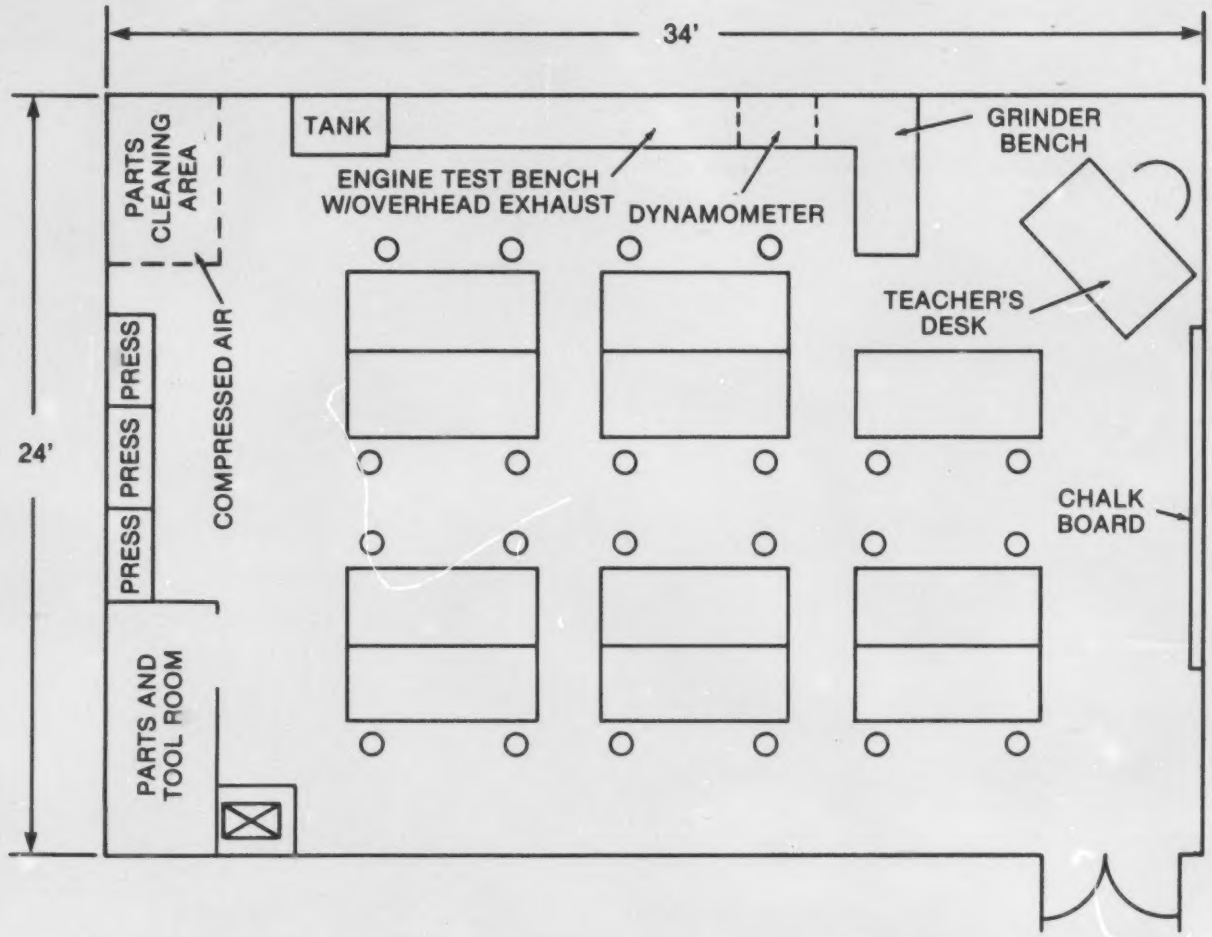
Suggested Small Engine Laboratory *

SCALE 3/16" = 1'



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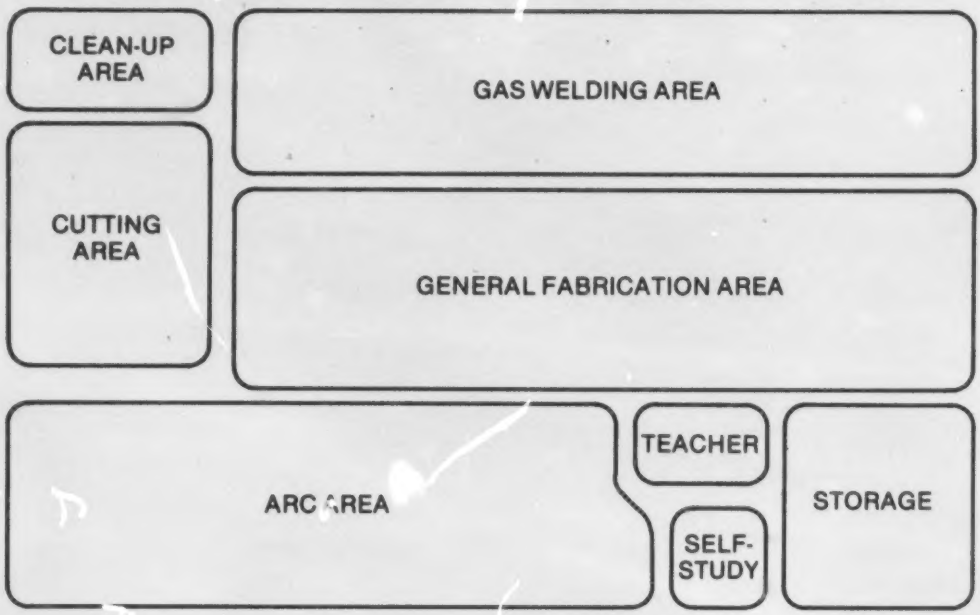
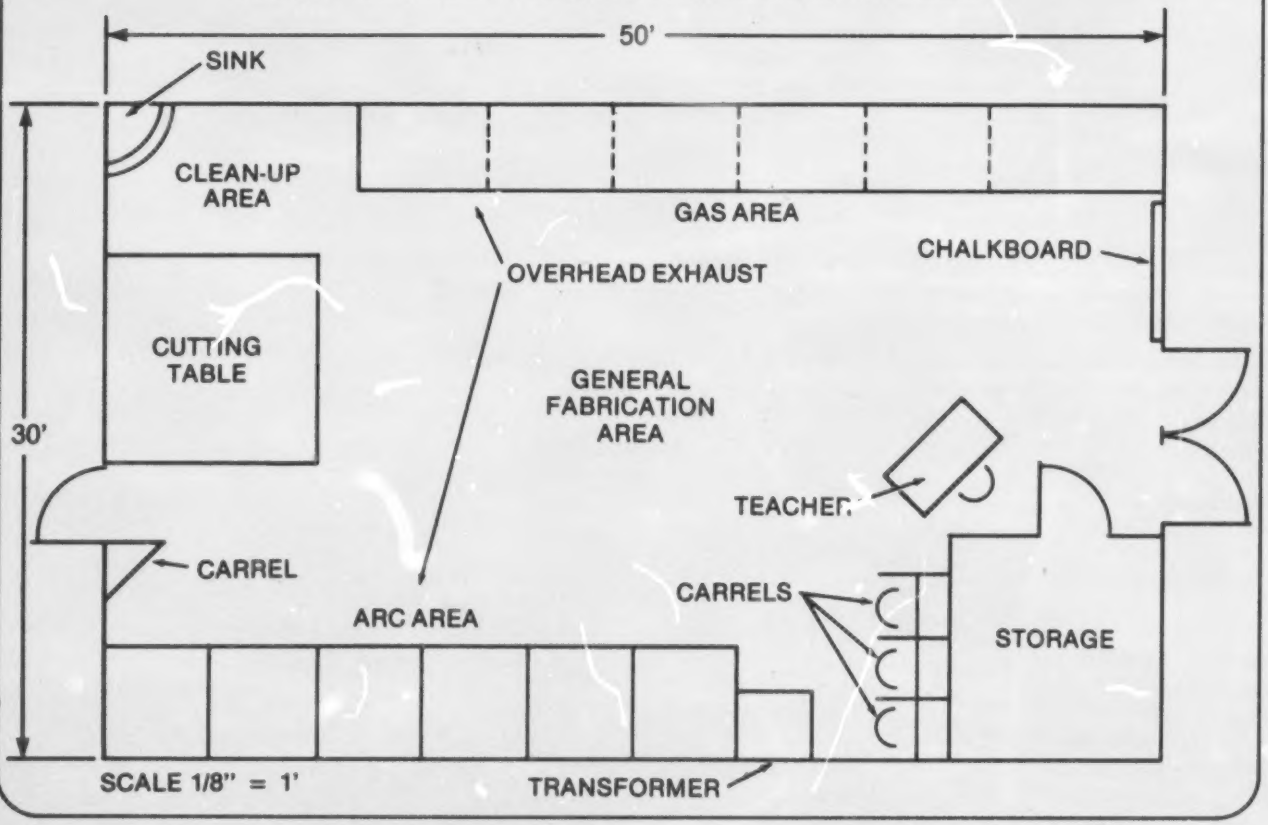
Suggested Welding Laboratory Functional Zones *

(Open Plan Allows Teacher Surveillance of All Stations)



Suggested Welding Laboratory *

(Open Plan Allows Teacher Surveillance of All Stations)



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Automotive Technology

Basic Textbooks and Instructional Materials

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OFFICE OF DEPENDENTS SCHOOLS
2461 EISENHOWER AVENUE
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EOS-50867 November 15, 1980

MEMORANDUM FOR Regional Directors of Dependents Schools

SUBJECT: Basic Textbooks and Instructional Materials for Automotive Technology

It is a pleasure to provide you with the attached Department of Defense Dependents Schools (DoDDS) List of Approved Textbooks and Instructional Materials for Automotive Technology. Any future appropriated fund procurement of Automotive Technology Basic Textbooks and Instructional Materials for DoDDS must conform to this listing until officially revised.

As you know, texts and materials provided by publishers for this review process were studied extensively during school year 1979-80 by formal review committees in the DoDDS regions. Those worldwide committees were composed of students, parents, and community representatives as well as professional educators. Detailed data conforming to established criteria and generated by each of these committees, were reviewed in detail by the Career Education task group in their meeting of June 23-27, 1980. Basic textbooks and instructional materials judged most suitable for achieving the published DoDDS objectives within the DoDDS system have been included in the approval list.

Your support of the DoDDS Automotive Technology basic textbooks and instructional materials review is appreciated.

Anthony Cardinale
Director

Approved List of DoDDS Basic Textbooks and Instructional Materials for Automotive Technology - Grades 7-12

COURSE	GRADES	TITLE
Exploratory Power Mechanics	7-8	General Power Mechanics, Second Edition
Automotive Consumerism	9-12	Do-It-Yourself Automotive Maintenance and Repair
Introduction to Auto Technology	9-12	The Auto Book, Second Edition Study Guide Workbook Test Booklet Instructor's Guide Auto Cassette Series
Auto Body	9-12	Total Auto Body Repair Student's Manual, 1978 Instructor's Guide, 1978
Vocational Auto Mechanics	9-12	Automotive Mechanics, Eighth Edition Workbook Study Guide Test Booklet Instructor's Planning Guide
Welding	9-12	Welding Technology Student's Manual Teacher's Manual
	9-12	Welding: Principles and Practices

Approved List of DoDDS Basic Textbooks and Instructional Materials for Automotive Technology - Grades 7-12

AUTHOR	PUBLISHER	COPYRIGHT DATE
Crouse, Worthington, Margules, and Anglin	McGraw-Hill International Book Co., Inc.	1976
Billiet	Prentice-Hall	1978
Crouse and Anglin	McGraw-Hill International Book Co., Inc.	1979
Rnone	Bobbs-Merrill Company, Inc.	1976
Crouse	McGraw-Hill International Book Co., Inc.	1980
Kennedy	Bobbs-Merrill Company, Inc.	Latest edition
Sacks	Chas. A. Bennett Company, Inc.	1976

COURSE	GRADES	TITLE	AUTHOR	PUBLISHER	COPYRIGHT DATE
WELDING	9-12	Basic Arc Welding	Griffin	Delmar-Litton	1977
		Basic Oxyacetylene Welding	Griffin	Delmar-Litton	1977
		Basic Tig and Mig Welding	Griffin	Delmar-Litton	1977
		Welding Procedures: Mig and Tig	Schell	Delmar-Litton	1978
		Welding Procedures: Oxyacetylene	Schell	Delmar-Litton	1977
		Welding Procedures: Electric Arc	Schell	Delmar-Litton	1978
		Welding Processes	Griffin	Delmar-Litton	1978
SMALL ENGINES	7-12	Small Engine Mechanics, Second Edition Workbook—Instructor's Planning Guide	Crouse and Anglin	McGraw-Hill International Book Co., Inc.	1980

Technical Manuals

Mitchell Manuals Series	Mitchell Manuals	Mitchell Manuals, Inc.	1979

Packaged Programs

Prentice-Hall Media Audiovisual Programs

#939 "Common Sense Car Care," 1978
#943 "Electronic Ignition Service," 1979
#948 "Fuel Service," 1979
#4300 "Automotive Technican: The Basic Engine," 1969
#941 "Autobody Repair: Refinishing," 1978

#922 "How the Automobile Works," 1978
#925 "Hydraulic Brake Service," 1977
#944 "Cylinder Head Service," 1978
#923 "Working in the Automobile Trade," 1977
#3370 "Safety at Work," 1970

#926 "Electrical Ignition Service," 1977
#942 "Steering and Suspension Systems," 1979
#924 "Basic Automotive Service," 1977
#940 "Autobody Repair: Metal Work," 1979
#931 "Small Engine Service and Overhaul," 1977

Publisher Addresses of Approved Basic Textbooks and Instructional Materials for Automotive Technology

Bobbs-Merrill
4300 W. 62nd Street
P.O. Box 7080
Indianapolis, Indiana 60264

Charles A. Bennett Company, Inc.
809 W. Detweiller Drive
Peoria, Illinois 61615

Litton Ed. Publishing
(Delmar and Von Nostrand Rienhold)
135 W. 50th Street
New York, New York 10020

Gregg/McGraw-Hill International
Book Company, Inc.
1221 Avenue of the Americas
New York, New York 10020

Mitchell Manuals
(Government Liaison)
6305 Wayles Street
Springfield, Virginia 22150

Prentice-Hall Media
150 White Plains Road
Tarrytown, New York 10591

Prentice-Hall, Inc.
Route 9W
Englewood, New Jersey 07632

Regional Automotive Technology Textbooks/Essential Materials Formal Review Committees (Composed of Teachers, Parents, and Community Members)

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